IN THE SPECIFICATION

Please amend the above-captioned patent application as follows:

Page 3, last partial paragraph thereon:

As mentioned, a diode should be replaced relatively quickly if it fails. Of course, this requires shutting down the entire generator. Idling a generator for such maintenance or for any maintenance for that matter, takes an expensive generator out of service for a period of time and makes the installation less profitable. To minimize down time, each diode pair can be mounted in a module. Rather than having to loosen the mount for an individual diode in cramped quarters, the repairer simply unbolts the electrical and mechanical connections for the module from the inside of the drum and ~~the~~ then reverses the procedure with a new module.

Page 4, second full paragraph beginning at line 10:

Secondly, when the module is bolted to the drum interior, the corresponding outer surface of the diode module is forced to conform to the drum surface. If the two surfaces do not have substantially identical geometry, the forces applied by the bolts flexes the module housing slightly, which may result in damage in the diode module. The only reasonable way we know to assure identical geometry is for the two surfaces to have substantially identical cylindrical radii of curvature and near-specular finishes.

Page 8, first full paragraph beginning at line 6:

The outer end of spoke 15a is configured as a pad 18a having an outer surface 21a whose surface area is substantially larger than the minimum cross sectional area of arm 15a. Surface 21a is intended to bear against the inner surface 28 (see Fig. 4) of drum 24. To achieve the larger surface area, pad 18a has in its preferred embodiment, what we call angular overhangs or arms generally shown at 32a and 33a in both leading and following positions, i.e., on both sides of spoke 15a when viewed in axial elevation as in Fig. 3. By "angular overhang" we mean that the pad 18a extends to subtend a substantially greater angle measured relative to axis 13 than does the spoke section 14a closer to hub 12. We prefer that the angular overhangs at 32a and 33a are symmetrical. (Where angular relationships among features of spokes 15a, etc. and other features of diode wheel 5 are mentioned, these are referenced to axis 13 unless otherwise stated.) In the example above, pad 18a subtends an angle of 34 . For the embodiment described above, this provides for a dimension of pad 18a along the arc of around 5.2 in. (13.2 cm.). The axial dimension of pad 18a is preferably 1.5 in. (3.8 cm.) in the axial direction, the same depth as spoke 15a. Thus the ratio of the outer surface 21a area to the minimum cross sectional area of arm 15a is approximately 2.6:1. Area ratios as small as 1.5:1 and perhaps even smaller surely will qualify surface 21a as "substantially larger" than the minimum cross sectional area of arm 15a. Near the end of each overhang 32a and 33a, the radially measured thickness of pad 18a is 1.0 in (2.5 cm.).

IN THE CLAIMS

Please amend claims 1 and 2 of the above-captioned patent application as follows. Hereinafter please find a complete listing of claims with parenthetical status identifiers, deleted portions stricken out, additions underlined, pursuant to a Pre-OG Notice dated January 31, 2003 entitled AMENDMENTS IN A REVISED FORMAT NOW PERMITTED:

1. (Currently amended) A two-piece diode wheel for use in ~~the~~ a brushless exciter, said diode wheel having a peripheral drum for carrying a plurality of diodes and a hub having an axis of rotation, said hub having a plurality of radially extending spokes contacting ~~the~~ an interior of the drum and supporting the drum in a substantially fixed position relative to the hub, wherein the improvement comprises an outer end of at least a first of the spokes having an outer surface, said outer surface having an area substantially greater than the minimum cross sectional area of the spoke.

2. (Currently amended) The improved diode wheel of claim 1, wherein said drum has a circularly cylindrical interior surface having a predetermined radius, and wherein each spoke's outer surface has a radius of curvature relative to the hub's axis of rotation ~~collectively~~ defining a cylinder forming at room temperature an interference fit with the drum's interior surface radius.

3. (Original) The improved diode wheel of claim 2, wherein the at least first spoke has at its outer end a pad, said pad overhanging the first spoke at least angularly.

4. (Original) The improved diode wheel of claim 3, wherein the pad overhangs the spoke angularly both leading and following.

5. (Original) The improved diode wheel of claim 4, wherein the pad overhangs the spoke axially.

6. (Original) The improved diode wheel of claim 4, wherein the pad overhangs the spoke in both axial directions.

7. (Original) The improved diode wheel of claim 4, wherein the pad overhangs the spoke angularly and symmetrically.

8. (Original) The improved diode wheel of claim 4, wherein the pad has at least one axially facing surface intersecting the pad's outer surface and defining thereby a

curved line of intersection, said axially facing surface having a groove having a predetermined spacing from the line of intersection.

9. (Original) The improved diode wheel of claim 8, wherein said groove has a substantially constant spacing from the curved line of intersection.

10. (Original) The improved diode wheel of claim 3, wherein the pad has a profile in an axial elevation view blending with the spoke in a transition area of the pad from the pad surface to the spoke.

11. (Original) The improved diode wheel of claim 3, wherein at least three spokes equally spaced have a bore extending radially from the pad's outer surface toward the hub to a predetermined depth, and the drum has a radially extending hole penetrating the drum and aligned with the spoke's bore, said drum having on its outer surface a circular groove surrounding the drum's hole, said circular groove having an inner radius larger than the radius of the drum's hole, said drum's hole and said spoke's bore for receiving a pin.

12. (Original) The improved diode wheel of claim 2, wherein the pad overhangs the spoke axially.

13. (Original) The improved diode wheel of claim 12, wherein the pad overhangs the spoke in both axial directions.

14. (Original) A two-piece diode wheel for use in the exciter for a generator armature winding, said diode wheel having a peripheral drum for carrying a plurality of diodes and a hub having an axis of rotation, said hub having a plurality of radially extending spokes contacting the interior of the drum and supporting the drum in a substantially fixed position relative to the hub, said drum having a circularly cylindrical interior surface having a predetermined radius at room temperature, wherein the improvement comprises at the outer end of at least a first of the spokes, a pad integral with the outer end of the spoke and having an outer surface with an area substantially larger than the minimum cross sectional area of the spoke.

15. (Original) The improved diode wheel of claim 14, said pad's outer surface having a radius of curvature relative to the hub's axis of rotation forming an interference fit with the drum's interior surface radius.

16. (Original) The improved diode wheel spoke of claim 15, wherein the pad overhangs the first spoke angularly both leading and following.

17. (Original) The improved diode wheel spoke of claim 15, wherein the pad overhangs the first spoke angularly.

19. (Original) The improved diode wheel spoke of claim 15, wherein the pad overhangs the first spoke angularly and symmetrically both leading and following.

20. (Original) The improved diode wheel spoke of claim 15, wherein the pad overhangs the first spoke axially.

21. (Original) The improved diode wheel spoke of claim 15, wherein the pad overhangs the first spoke in both axial directions.

22. (Original) The improved diode wheel of claim 15, wherein the first spoke has a radially aligned hole, the drum has a hole aligned with the first spoke's hole, and the

outer surface of the drum has a circular groove surrounding and concentric with the drum's hole.

REMARKS

Claims 1 - 22 remain in this application. Applicants' attorney erred in the original application by omitting claim number 18. Applicants respectfully request examiner to properly renumber the claims including the claims now numbered 19 - 22 upon allowing the case.

First of all with respect to the common ownership matter, applicants believe the Examiner's presumption that the invention was commonly owned (by the assignee Electric Machinery Company, Inc.) is correct. Inventor Casey was an employee of assignee Electric Machinery at the time the invention was conceived. He had signed an agreement to assign his inventions to a predecessor of Electric Machinery. A copy of this agreement is attached. Inventor Casey has signed a declaration further defining his obligation to assign rights in inventions to Electric Machinery, and a true copy of this declaration is also attached. The original is available should Examiner wish to have it.

Inventor Bail also had executed an agreement to assign his inventions to a predecessor of Electric Machinery. Applicants attach a declaration by inventor Bail defining his obligation to assign the application to Electric Machinery. Applicants believe these facts establish the

existence of common ownership of the invention by Electric Machinery since the invention was conceived.

With respect to claims 1, 14, and 16, applicants respectfully traverse and request favorable reconsideration.

Applicants have corrected minor typographical errors in the description and claim 1, and trust that these meet with Examiner's approval. Applicant has broadened claim 2 somewhat but not in a way that will affect the current status of claim 2 as allowable.

Claims 1, 14, and 16 have been rejected as obvious over the known prior art in combination with the Reist patent US 559,910. Applicants respectfully traverse this finding. In the first place applicants question the rejection of claim 16. Claim 16 depends from claim 15. The Examiner has found allowable subject matter in claim 15, so one would expect that claim 16 would be treated similarly. Possibly, this is simply oversight. Applicants assume that claim 16 contains allowable subject matter.

Reist shows a generator armature rather than a diode wheel. Armatures are substantially different devices from diode wheels. They carry windings in which current flows during electrical generation. This current may be DC provided by an exciter winding and then rectified by the

diodes on a diode wheel, or may be generated AC power. A diode wheel of course, does nothing more than carry diodes for rectifying generated AC power to form the DC for an exciter winding of the main generating unit.

With respect to claims 1 and 14, applicants first argue that the armature of Reist is not a diode wheel and is not analogous to a diode wheel. The mere fact that both are used in the generation of electricity does not make the art analogous. The technical considerations are different. An armature design must take the flow of strong magnetic fields into account as well large current flows. An armature carries windings in which flows the DC power rectified by the diodes on a diode wheel. Thus, a diode wheel involves only current flows and rectification.

Even if these two arts are analogous, it is not at all clear how one of ordinary skill can adapt the teachings of Reist to that of claims 1 and 14. The limitations of the claimed improvement should not be taken in isolation from the preamble. It is hard to equate the laminated rim of Reist with the solid drum of the claims. The outwardly facing arms of Reist's armature are substantially different from that for this diode wheel. Because of the differences in these devices it's one of ordinary skill may well be

unable to adapt Reist's teachings about armature construction to design a diode wheel.

As to claim 1, the "outer surface" of one of Reist's arms is arguably carried on the projecting tongues defining the dovetail slots G' - G', see Reist, line 76. It's not at all clear that these tongues' "outer surfaces" have an area "substantially larger than the minimum cross sectional area of the spoke" as the claim requires.

Claim 14 is limited to a drum having a "circularly cylinder interior surface". Even if one can assume Reist's laminated rim to be the equivalent of a diode wheel, the Reist rim does not have a "circularly cylinder interior surface". The individual dovetails projecting inwardly destroy the circularity of the diode wheel interior. The circularity is important to simplify fabrication of the drum and assembly of the wheel, and reduces stress concentrations in the drum. This problem of stress concentrations was in fact one of the main motivations for the inventors in conceiving the invention of this application.

The structures of claims 1 and 14 are intended for a shrink fit assembly process where stresses are high and dimensional tolerances small. Even minor deviations from the specifics of the claimed structure affect the success

of the device. While the intended purpose cannot be used to distinguish otherwise identical structures, different purposes magnify the structural differences, so that what a reference teaches for one intended use may be totally unhelpful for a different intended use.

The components described by claims 1 and 14 provide the opportunity for an improved shrink-fit diode wheel assembly. Applicants urge that Reist's teachings cannot be combined with the conceded prior art to achieve this opportunity.

In view of the foregoing, applicants urge the Examiner to allow claims 1, 14, and 16 and pass this case to issue.

Please charge any deficiencies or credit any over payment to Deposit Account 14-0620.

Respectfully submitted,

James T. Casey et al.

By their attorney

Date 7/16/03

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